

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (CLINICAL NUTRITION) EXAMINATION – MARCH 2022

Date:- 28th March 2022

Time:- 9.00 a.m. – 12.00 noon

PAPER I – SEQ

Answer **all five (05)** questions.

Each question to be answered in a separate book.

1. A 50-year-old, 60 kg adult male is having an enterocutaneous fistula with a fistulous output of 1500 ml/day. He is referred to you from a surgical unit for a prescription for parenteral nutrition.
 - 1.1. Give an estimate of the daily calories, carbohydrate, fat and protein requirements for him. What other components should be included? (30 marks)
 - 1.2. How do you estimate the volume of water that is required daily for this patient? (10 marks)
 - 1.3. Outline how you would monitor and follow up this patient following commencement of feeding. (30 marks)
 - 1.4. List the potential complications and disadvantages of administration of parenteral nutrition. (30 marks)
2.
 - 2.1. What are the two (02) main nutritional features associated with ageing? (10 marks)
 - 2.2. What are the phenotypic and aetiologic criteria for the diagnosis of malnutrition in an Asian person aged 75 years according to GLIM criteria? (30 marks)
 - 2.3. Mention three (03) age-associated risk factors for malnutrition in older adults (15 marks)
 - 2.4. What is the protein and energy requirement for an older malnourished patient? (15 marks)
 - 2.5. On which data is the diagnosis of sarcopenia made? (10 marks)
 - 2.6. Name four (04) techniques used to measure muscle mass. (10 marks)
 - 2.7. Name two (02) pros and cons of hypodermoclysis. (10 marks)

Contd.../2-

3. A 20-year-old female athlete is referred for nutritional advice. Her weight is 66 kg and the height is 1.7 m. On direct questioning she had no history of menorrhagia, and she was not a vegetarian. Past medical and surgical history was unremarkable. She appeared well but pale.

Her blood investigation results are as follows:

Hb	9.5 g/dL	(12-16)
WBC	$5.5 \times 10^9/L$	(3.6 -11.0)
Platelet count	$310 \times 10^9/L$	(150,000-450,000)
MCV	62 fl	(80-100)
MCHC	27 g /L	(33.4-35.5)
MCH	18 pg	(27-33)
RBC count	$6.5 \times 10^{12}/L$	(3.92-5.13)
Blood Picture	Hypochromic microcytic RBC with anisocytosis, poikilocytosis and target cells.	
	WBC and platelets appear normal	
Serum Na ⁺	136 mmol/L	(135-145)
Serum K ⁺	4.1 mmol/L	(3.6-5.2)
Serum urea	4 mmol/ L	(2.1-8.5)
Serum creatinine	70 μ mol/L	(61.9-114.9)
SGOT	45 IU / L	(8-45)
SGPT	30 IU / L	(7-56)
Serum protein total	7.0 g/dL	(6.0-8.3)
Albumin	4.0 g/dL	(3.4-5.4)
Globulin	3.0 g/dL	(2.0-3.9)

- 3.1. Suggest two (02) possible diagnoses. (10 marks)
- 3.2. Write two (02) investigations to differentiate the above two diagnoses. (10 marks)
- 3.3. Explain how you would interpret the two (02) investigations to arrive at the final diagnosis. (30 marks)
- 3.4. Estimate her daily energy requirement. (10 marks)
- 3.5. What nutritional advice would you give this young athlete for the above two diagnoses mentioned in 3.1? (40 marks)

Contd.../3-

4. A 71-year-old male patient with stage IV small cell carcinoma of the lung is in the intensive care unit with neutropaenic sepsis. He is on antibiotics and inotropic support. He was referred to you for nutritional advice. His body weight is 45 kg for a height of 1.65 m (BMI 16.5 kg/m²). He had pancytopenia.

WBC	1.2 x 10 ⁹ /L	(4-11)	
Absolute neutrophil count	400 x 10 ⁶ /L		
Hb	8.0 mg/dL	(12-16)	
Serum Na ⁺	120 mmol/L	(135-145)	
Serum K ⁺	3.6 mmol/L	(3.6-5.2)	
Serum urea	6.0 mmol/L	(2.1-8.5)	
Serum creatinine	120 µmol/L	(61.9-114.9)	
Serum ionised Ca ²⁺	1.2 mmol/L	(1.05-1.3)	
Serum ferritin	15 µg/L	(20-240)	
SGOT	45 IU/L	(8-45)	
SGPT	30 IU/L	(7-56)	
Serum protein total	54 g/L	(6.0-8.3)	} 60-83 34-54 20-39
Albumin	22 g/L	(3.4-5.4)	
Globulin	32 g/L	(2.0-3.9)	

- 4.1. List the nutritional deficiencies in this patient. (20 marks)
- 4.2. What are the possible causes for the electrolyte abnormality? (10 marks)
- 4.3. Write three (03) investigations necessary to identify the reasons for the electrolyte abnormality mentioned in 4.2. (15 marks)
- 4.4. Write a detailed prescription for total parenteral nutrition for this patient. (35 marks)
- 4.5. What advice would you give this patient on discharge regarding nasogastric feeding? (20 marks)
- 5.
- 5.1. Define growth faltering in a child less than 5 years of age. (10 marks)
- 5.2. Mention the criteria commonly used to identify growth faltering in Sri Lanka. (10 marks)
- 5.3. List main causes leading to growth faltering among children under 5 years. (20 marks)
- 5.4. List five (05) situations where you refer a child with growth faltering to a paediatric specialist care service. (20 marks)
- 5.5. Outline the management of a neonate with weight loss in the early days of life. (20 marks)
- 5.6. A 5-year-old child was assessed for obesity. List five (05) clinical features that would suggest a non-nutritional cause for obesity. (20 marks)